

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 23 NOV 2004

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| Applicant's or agent's file reference 13447120 | FOR FURTHER ACTION | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416). |
| International Application No. PCT/AU2003/000951 | International Filing Date (day/month/year) 28 July 2003 | Priority Date (day/month/year) 26 July 2002 |
| International Patent Classification (IPC) or national classification and IPC Int. Cl. 7 C07K 14/345, C12N 15/70 | | |
| Applicant COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION et al | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

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|---|--|
| Date of submission of the demand 19 January 2004 | Date of completion of the report 10 November 2004 |
| Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929 | Authorized Officer  IAN DOWD Telephone No. (02) 6283 2273 |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU2003/000951

I. Basis of the report

1. With regard to the elements of the international application:*

- the international application as originally filed.
- the description, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of
- the drawings, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/fig.

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU2003/000951

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

| | | |
|-------------------------------|-------------|-----|
| Novelty (N) | Claims 1-30 | YES |
| | Claims | NO |
| Inventive step (IS) | Claims 1-30 | YES |
| | Claims | NO |
| Industrial applicability (IA) | Claims 1-30 | YES |
| | Claims | NO |

2. Citations and explanations (Rule 70.7)

This report is based on the documents cited in the International Search Report.

Citations

D1 **Journal of Bacteriology**, May 2003, p2811-2819

Blaudeck, N. et al "Genetic Analysis of Pathway Specificity during Posttranslational Protein Translocation across the *Escherichia coli* Plasma Membrane"

D2 **The Journal of Biological Chemistry** Vol 277, No 5, Issue of February 1, pp 3268-3273, Published 21 November 2001.

Pop, O. et al, "The Twin-arginine Signal Peptide of PhoD and the TatA_d/C_d Proteins of *Bacillus subtilis* Form an Autonomous Tat Translocation System"

D3 **J. Mol. Microbiol. Biotechnol.** (2002) 4(6): 533-538

Gerard, F. et al, "Export of *Thermus thermophilus* Cytoplasmic β-Glycosidase via the *E. coli* Tat Pathway"

D4 **Protein Engineering**, Vol 16, No. 2, pp 135-145, 2003

Yang H et al, "Export of an organophosphate-degrading enzyme: a comparison of natural and directed evolution".

Novelty and Inventive Step

D1 analysed pathway specificity for posttranslational protein translocation across the cytoplasmic membrane. The analysis found replacement of the authentic signal peptide of the maltose binding protein (MalE) precursor by the Tat dependant TorA signal peptide, redirected this normally SecB-dependent protein selectively and exclusively into the Tat pathway. However, this document is regarded as having an intermediate publication, and is therefore excluded for the purposes of novelty and inventive step.

D2 - D4 are relevant background documents that do not impinge on novelty or inventive step.

Industrial Applicability

All claims satisfy the requirements of Article 33(4) of the PCT.